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A DESCRIPTION OF THE LARVA OF MACROVATELLUS MEXICANUS SHARP (COLEOPTERA: DYTISCIDAE)[1]

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The genus *Macrovatellus* is known presently from the tropical and subtropical regions of the Western Hemisphere. Nine species have been described in the genus. Of this number, eight occur in South America, and only *M. mexicanus* Sharp is known, thus far, from Mexico. In Mexico, adults have been collected as far north as Alamos in the state of Sonora and 20 miles north of Comondu in Lower California.

The larvae described here as *M. mexicanus* are identified as such by elimination, association and size. *Macrovatellus* is the only Mexican hydroporine genus except *Desmopachria* and *Pachydrus* whose larvae cannot be identified by existing keys. All the species of *Desmopachria* are so small that this genus can be eliminated by size alone. I am also able to eliminate *Pachydrus* because I have undescribed *Pachydrus* larvae from Puerto Rico (where *Macrovatellus* does not occur). In addition, no *Pachydrus* were collected in the small pond at San Blas, Nayarit, where the larval material discussed in this paper was collected.

Description of Larva
(Figures 1-5)

Length 14 mm.; greatest width of pronotum 1.35 mm.

Color of integument yellowish gray; dorsal sclerites brownish but lighter anteriorly. Head yellowish gray except for a brown lateral stripe and a brown curving line following ecdysial cleavage line and its arms from base to middle of head where the line curves abruptly backwards, hooklike, and terminates at base of nasale. Pronotum brownish with yellowish gray trilobed macula discally. Mesonotum brownish with small, irregularly reniform, yellowish gray macula each side of midline. Dorsum of larva with a median yellowish gray stripe. Head appendages yellowish gray except for slightly darker gray color of second and third antennal segments. Terminal cerci with four alternate bands of brown and yellowish gray from base to apex. Legs entirely yellowish gray.

Head subquadrate, slightly narrower posteriorly and with a distinctive trifurcate nasale as long as length of head. Median branch of nasale narrow and parallel sided to broadly spatulate apex; ventrolateral surface bears two large spines on each side on anterior half and a group of seven or eight small spines are present ventrally

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directly behind spatulate apex. Spatulate apex margined with setae of three lengths; the shortest are clavate and arranged in a dense row along lateral and apical margins; on each side of and at about midlength of spatulate apex is a long, rodlike seta; between these two rodlike, lateral setae and along anterior margin of spatulate apex are four clavate setae that are two-thirds as long as the two long, lateral setae. Dorsolateral surface of median branch of nasale with 15 or 16 small setae irregularly spaced on each side from base of median branch to spatulate apex. Apex of median branch of nasale with 9 or 10 long, fine setae on each side. Lateral branches of nasale are about two-thirds as long as median branch. Each lateral branch with small Y-shaped fork at apex, nine ventrolateral spines and one large ventromedial spine. Ecdysial cleavage line united at base, and forking at about one-third length of head; frontal arms curve laterally and terminate between base of nasale and antennae. Dorsal surface of head glabrous except for 15 to 20 short stout setae laterally, 2 or 3 short stout setae and 12 or 13 long hairs around ocular area. Ventral surface of head glabrous except 10 or 11 small setae irregularly spaced along each side of midline and 2 posterior tentorial pits at about midlength of head. Ocular area with six ocelli in a tight cluster. Antenna four-segmented; first and third segments longest, subequal; ultimate segment very small, about one-seventh as long as penultimate; basal segment with approximately eight setae irregularly placed throughout its length; second segment with two setae at apical fourth and one at midlength medially. Mandible long, slender, falciform, curved upward and inward apically, grooved along inner surface and with a stout seta ventrolaterally at base. Maxillary stipes rudimentary. Maxillary palpi slender, elongate, four-segmented; first three segments subequal in length; fourth segment approximately one-fifth length of third; second segment with five long spines; remaining segments glabrous. Labium small, rectangular, with one stout spine laterally and with two slender spines and two long hairs apically between palpi; ligula absent; labial palpus very slender, three-segmented.

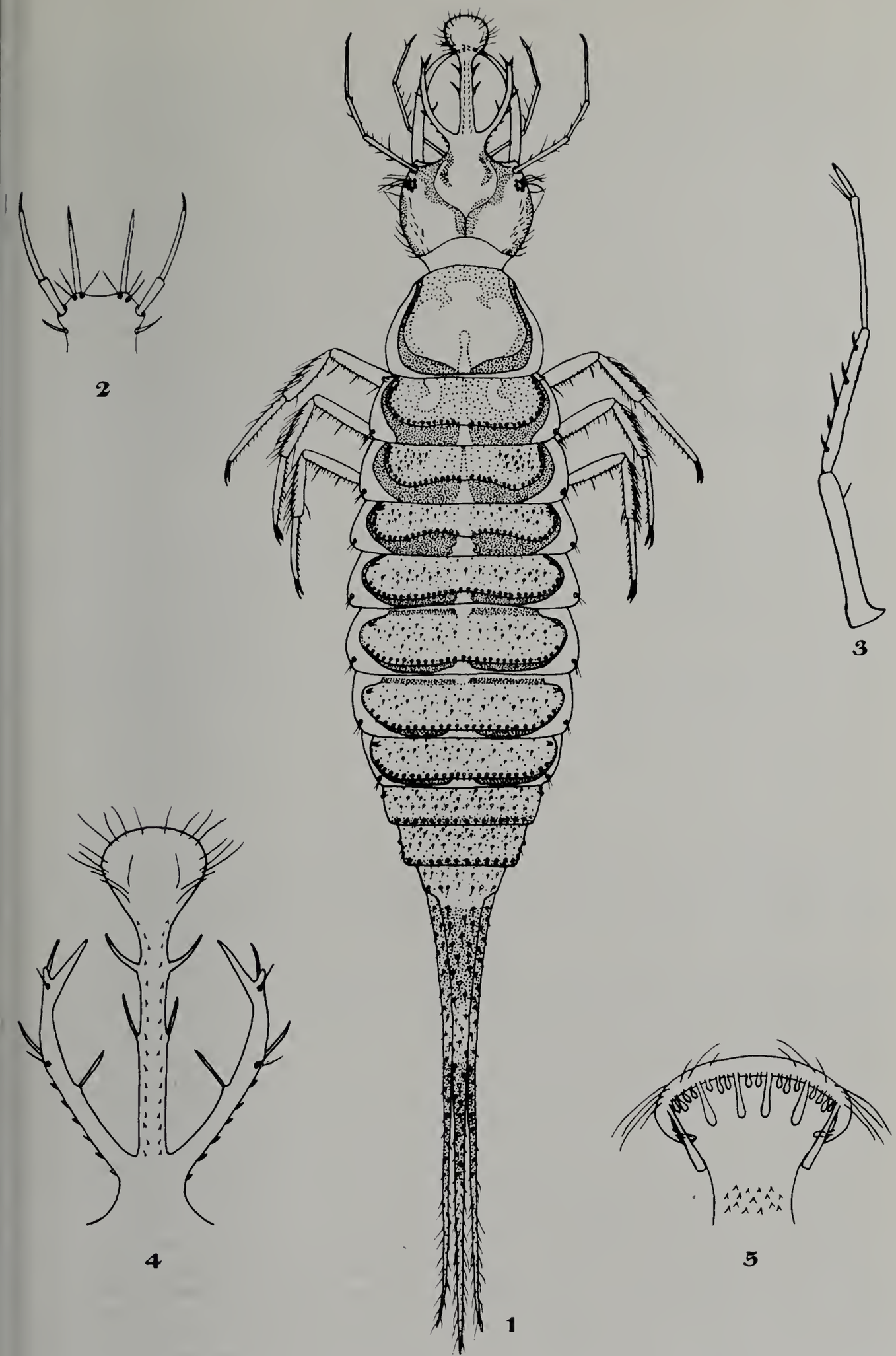
Pronotum subquadrate, wider basally, with numerous long hairs placed irregularly over surface and a few short and stout setae laterally and transversely on hind margin of sclerite. Mesonotum slightly wider than pronotum and half as long; with numerous setae along lateral margins and transversely across hind margin of sclerite and a few setae scattered discally; a spiracular opening is present in pleural region below anterolateral angle of sclerite. Metanotum slightly wider than mesonotum and about as long; setation similar to mesonotum.

Legs elongate, five-segmented. Coxa long; trochanter about one-third as long as coxa; femur as long as tibia and tarsus combined. Tarsus with two elongate, slender claws; outer claw slightly shorter than inner. Coxa with three stout setae on anterior face and two or three at junction of coxa and trochanter. Trochanter with three or four stout setae, one on anterior face and two or three apically. Femur with four or five stout setae on anterior (upper) face and four longer setae on posterior edge. Tibia and tarsus with numerous setae and natatory hairs.

Abdomen with eight distinct segments; segments 1 to 6 with dorsal sclerites; segments 7 and 8 completely sclerotized, ringlike. Segment 7 dark brown; segment 8 yellowish gray. Segments 1 to 7 setose on lateral margins and transversely across hind margin of terga and with a few setae scattered over surface. Segment 8 setose over surface, prolonged posteriorly into a long, slender cercus beneath which arise two cerci of similar shape, size and color. All three cerci unsegmented, bearing numerous setae throughout their length. Lateral margins of terga 1 through 7 each with a spiracle. Mesopleura, metapleura and pleural folds of segments 1 to 6 each with a small seta-bearing sclerite on posterolateral angle.

Judging from their large size, these larvae appear to be third instars.

Variations: The most obvious variation noticed is in the pattern and amount of pigmentation of the dorsal sclerites. The discal macula on the pronotum shown as trilobed in the larva illustrated (fig. 1) may vary in other larvae. In some specimens the yellowish gray color of the disc is so extended that the anterior lobe is eliminated. At the other extreme, pigmentation has progressed onto the disc so that the only remnant of the anterior lobe is an indistinct yellowish gray longitudinal stripe on the middle of the disc. The reniform maculae on the mesonotum of the larva described are reduced to small oval maculae on some of the other specimens.



FIGURES 1-5, *Macrovatellus mexicanus* Sharp. 1—Larva, dorsal view. 2—Labium, ventral view. 3—Maxilla, ventral view. 4—Nasale, dorsal view. 5—Apex of median lobe of nasale, anteroventral view.

Specimens examined: Twenty-two larvae were examined in the course of this study from San Blas, Nayarit, Mexico, collected July 26, 1963, P. J. Spangler. These specimens have been deposited in the collections of the U. S. National Museum.

Distribution: I have seen adult specimens from the following localities in Mexico: Alamos, Sonora, July 15, 1963, P. J. Spangler (2); San Blas, Nayarit, July 26, 1963, P. J. Spangler (48); Colima (1); Sinaloa (4); Rio Guayaleyo near Magiscatzin, Tamaulipas, July 11, 1960, F. N. Young (2). These specimens are in the U. S. National Museum collections. In addition, Leech (1948) reported the species from 20 miles north of Comondu, Lower California, July 23, 1938 (in tinaja) (26) and from Apatzingan, Michoacan, alt. 1,200 ft., August 11, 1941, Harry Hoogstraal (1). Sharp (1882) reported the species from Puebla, Mexico.

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LITERATURE NOTICE

THE DYTISCIDAE (COLEOPTERA) OF UTAH: KEYS, ORIGINAL CITATION, TYPES AND UTAH DISTRIBUTION. By Russell D. Anderson. Great Basin Naturalist 22(1-3):54-75, 1962.—The contents are explained in the title. 20 genera with 80 species are included, upping the State records considerably.

NOTE PRELIMINAIRE SUR LA CLASSIFICATION DES CARDIOPHORINAE D'EUROPE ET DE LA REGION MEDITERRANEENNE [COL. ELATERIDAE]. By Roger Dajoz. Rev. Francaise d'Ent. 30:164-173, 25 figs., 1963.—Contains keys to the 5 palearctic genera and 14 species groups of *Cardiophorus;* genitalic characteristics are stressed and illustrated.

THE CICINDELIDAE OF MICHIGAN (COLEOPTERA). By Robert C. Graves. American Midl. Nat. 69(2):492-507, illus., 1963.—Fourteen species are keyed, their elytral patterns are figured, and their distributions by counties are listed.

ENTOMOLOGIE APPLIQUEE A L'AGRICULTURE. TOME 1, COLEOPTERES. Under the direction of A. S. Balachowsky. Masson et Cie Edituers, Paris, in two parts, 1391 pages, 784 figs., 1962-63. (Price, 132 & 162 N.F.)—Eight volumes in this series will be necessary to complete all insect groups, mites, myriapods, molluscs, and nematodes. This first volume, a large work by many authors, describes the biologies of many economically important beetle species of Europe and adjacent areas. Short recommendations for the control of each species is given. The many illustrations of the beetles or their immature stages and their work are especially good. The treatment of the Curculionidae and Chrysomelidae requires more than half the pages, with the Scarabaeidae running in third. This work brings together much information from many literatures. It should be a big help to those interested in the biologies of beetles.